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JUNE 9TH, 1851.

GEORGE PETRIE, LL.D., in the Chair.

VEN. M. G. BERESFORD, Archdeacon of Ardagh Christopher Fleming, M. D.; Thomas Hone, Esq.; John Edward Pigot, Esq.; Monsieur Amadie De la Ponce; Robert Ross, Esq.; and Catterson Smith, Esq.; were elected Members of the Academy.

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Mr. M. Donovan read a paper on Concert Pitch, and the means of determining its vibrations.

Mr. Donovan commenced his communication by requesting indulgence while he made a few observations which might at first appear to have but little connexion with the objects of the Academy, but without which the utility or necessity of the communication itself would not be apparent. He then proceeded with an account of concert pitch during the last 160 years, its fluctuations, uncertainty, and ill-effects on the voice of public singers. Musicians have, however, at length come to an understanding on the subject, and have to congratulate themselves on the cessation of the confusion under which they have so long suffered. The pitch having fluctuated through all the shades of an interval of three semitones, each has had its trials: experiments have been made on the adaptation of the powers of musical instruments to the capabilities of voices, with this important result, that the Philharmonic and Opera pitches are now identical with each other, and with that of the French Conservatoire. We may consider that concert pitch is now permanently fixed: this, therefore, is the proper time for ascertaining and strictly defining it, so that, should it be ever lost or disputed, it may be recovered and identified in all countries and in all times, independently of pitch-pipes, pitch-forks, or the caprice of musi-

cians. The precise meaning in which concert pitch ought to be understood was then explained, as also the means by which instruments ought to be tuned to it.

Concert pitch is determined by the number of double vibrations which any string or pipe makes in a given time. The apparatus used by the author for ascertaining the number was then described: he described the means by which he attained a standard pitch. Some experiments were detailed, the calculations founded on them were entered into, and the results stated. The present concert pitch was shown to be at all times attainable and recoverable by throwing a steel wire of a certain length, diameter, and tension, into vibration, so that it shall quit and return to the point of inflection a certain number of times, within a given period.

Calculations and processes were then entered into, for obtaining the proper wire at all times, in case of its being no longer manufactured or sold. Means of proving or testing its qualities, and examples, were given. Necessity of great precision in these processes was proved by the instance of wires differing in diameter by the one-thousandth part of an inch, sounding notes which differed by very nearly a semitone. The errors of Mersenne in attributing the pitch of bells to their composition, and in estimating the effect of the component metals, were noticed. Similar mistaken notions were shown to have been acted on by the makers of piano-fortes.

The Rev. Professor Dixon exhibited a model intended to illustrate the azimuthal motion of a freely suspended pendulum, of which he gave the following account:

" This model is constructed on the principle, that we may consider the parallel of latitude, along which the point of suspension of the pendulum is carried by the diurnal rotation, to be made up of a number of elements, each of which coincides with the corresponding element of a great circle tangent to